

Alg. 2 Warm Up # 7-4

#1: Answer exact & simplified. No decimals.
 #2 & 3: Approximate to nearest hundredth.

$$1) \quad 2^{3x} = \left(\frac{1}{8}\right)^{4x-6}$$

$$2) \quad 2^x = 5$$

$$3) \quad \log_7\left(\frac{6}{x}\right) = \log_7 x + \log_7\left(\frac{x}{2}\right)$$

Week 7 Classwork:

Warm Up

CP's: 6- # 108 ---> 111
 (with small sheet log puzzles)

CP's: Blue WS

CP's: 6- #123 ---> 125

HW Questions:

CL 6-148. Graph in three dimensions.

a. $(2, 3, 1)$

b. $(-2, 3, 0)$

c. $2x + y - z = 6$

CL 6-149. Determine the point of intersection of the three planes.

$$\begin{array}{l} \text{a. } \textcircled{1} x + y + z = 3 \\ \textcircled{2} 2x - y + 2z = 6 \\ \textcircled{3} 3x + 2y - z = 13 \end{array}$$

$$\begin{array}{l} \text{b. } \textcircled{1} x + y + 4z = 5 \\ \textcircled{2} -2x + 2z = 3 \\ \textcircled{3} 3x + y - 2z = 0 \end{array}$$

Elim y

$$\textcircled{1} + \textcircled{2} \rightarrow 3x + 3z = 9$$

$$\begin{array}{r} \textcircled{3} + 2\textcircled{2} \rightarrow 4x - 2y + 4z = 12 \\ \quad \quad \quad 3x + 2y - z = 13 \\ \hline -1(7x + 3z = 25) \end{array}$$

$$\textcircled{1} \quad 4 + y - 1 = 3$$

$$y = 0$$

$$\boxed{(4, 0, -1)}$$

$$\begin{array}{r} 3x + 3z = 9 \\ -7x - 3z = -25 \\ \hline -4x = -16 \\ \quad \quad \quad \boxed{x = 4} \end{array}$$

$$\begin{array}{r} 3(4) + 3z = 9 \\ -12 \quad \quad -12 \\ \hline 3z = -3 \\ \quad \quad \quad \boxed{z = -1} \end{array}$$

CL 6-150. The parabola $y = ax^2 + bx + c$ passes through the points $(2, 3)$, $(-1, 6)$, and $(0, 3)$. Determine:

$c = 3$

a. The equation of the parabola. $\rightarrow y = ax^2 + bx + 3$

b. The vertex of the parabola.

c. The x-intercepts of the parabola.

from $(2, 3)$

$$3 = a(2)^2 + b(2) + 3$$

$$0 = 4a + 2b$$

then get a 2nd equation
from $(-1, 6)$ to find
 a & b .

$$y = x^2 - 2x + 3$$

$$y = x^2 - 2x + \underline{1} + 3 - \underline{1}$$

$$y = (x - 1)^2 + 2$$

$$\boxed{\text{Vertex } (1, 2)}$$

$$\text{c) } 0 = (x - 1)^2 + 2$$

$$\quad \quad \quad -2 \quad \quad \quad -2$$

$$\sqrt{-2} = \sqrt{(x - 1)^2}$$

No x-int.

CL 6-151. Solve each equation to the nearest thousandth (0.001).

a. $2^x = 17$

c. $5(3^{x+1}) = 85$

b. $\frac{5x^3}{5} = \frac{75}{5}$

d. $\log_3(x+1) = -2$

$$\sqrt[3]{x^3} = \sqrt[3]{15}$$

$$x \approx 2.466$$

MATH

$$3 \sqrt{\quad} 15$$

$$\sqrt{x}$$

15

$$\wedge$$

$$[(1 \div 3)]$$

$$y^x$$

enter

CL 6-151. Solve each equation to the nearest thousandth (0.001).

a. $2^x = 17$

b. $5x^3 = 75$

c. $\frac{5(3^{x+1})}{5} = \frac{85}{5}$

d. $\log_3(x+1) = -2$

$$3^{x+1} = 17$$

$$\log 3^{(x+1)} = \log 17$$

$$\frac{(x+1) \log 3}{\log 3} = \frac{\log 17}{\log 3}$$

$$x+1 = \frac{\log 17}{\log 3}$$

$$-1 \quad -1$$

$$x = \frac{\log 17}{\log 3} - 1, \text{ then calculate!}$$

$$3^{-2} = x+1$$

$$\frac{1}{9} = x+1$$

$$\frac{1}{9} - \frac{9}{9} = x$$

$$\boxed{-\frac{8}{9} = x}$$

CL 6-152. A gallon of propane costs \$3.59. Inflation has steadily increased 4% per year.

1.04 multiplier

a. What did a gallon of propane cost ten years ago? $\rightarrow x = -10$

b. If this trend continues, how much longer will it be until it costs \$10?

CL 6-153. Find the inverse of this equation: $y = 2 + \sqrt{2x - 4}$.

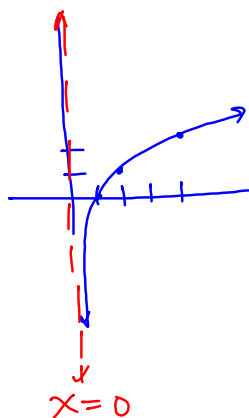
$$\begin{aligned} x &= 2 + \sqrt{2y - 4} \\ (x - 2)^2 &= (\sqrt{2y - 4})^2 \\ (x - 2)^2 &= 2y - 4 \end{aligned}$$

CL 6-154. Use your Parent Graph Toolkit or make a table to graph $y = \log_2(x)$.

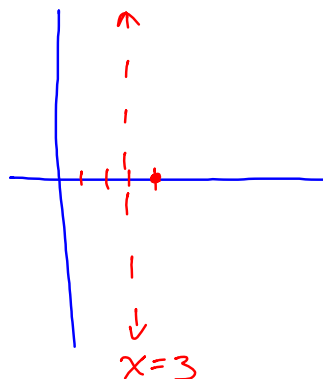
CL 6-155. Use your answer to the previous problem to graph $y = 1 + \log_2(x - 3)$. State the equation of the new asymptote and the new x -intercept.

154) $y = \log_2 x$

x	y
1	0
2	1
4	2



155) $R + 3$, up 1



Classwork: Purple

Rational Expression Practice

Classwork: Purple

Rational Expression Practice

check answers

1) $\frac{x+2}{x-5}$

2) $\frac{x+3}{x-3}$

3) $\frac{1}{x(x+2)}$

4) 1

5) $\frac{3}{4}$

6) $\frac{1}{x+4}$

Classwork: Purple

Rational Expression Practice

Back side

$$7) \quad \frac{9}{a+6}$$

$$8) \quad \frac{5(x+2)}{(x-4)(x+1)}$$

$$9) \quad \frac{7}{2(x-4)}$$

Test 6 will include:

Graph a point and equation in 3-D

Solve a system in 3 variables (by hand)

Find the equation of a parabola in standard form given three points

Change forms: $\log \longleftrightarrow \exp$.

Graph log using transformations of the parent graph

Write an equation, $y=ab^x$, given 2 points

Find an inverse

Solve an exponential equation

Simplify rational expressions

← Purple
classwork

HW:

Tan Review Worksheet

Test Ch. 6
Next Tuesday

Purple classwork:

$$8. \quad \frac{5x+9}{x^2-2x-3} + \frac{6}{x^2-7x+12}$$

$$\frac{(x-4)}{(x-4)} \cdot \frac{(5x+9)}{(x-3)(x+1)} + \frac{6}{(x-3)(x-4)} \cdot \frac{(x+1)}{(x+1)}$$

$$\frac{5x^2 - 20x + 9x - 36 + 6x + 6}{(x-4)(x-3)(x+1)}$$

$$\frac{5x^2 - 5x - 6}{(x-4)(x-3)(x+1)}$$

$$\frac{5(x^2 - x - 6)}{(x-4)(x-3)(x+1)}$$

Now factor
the top and
look for
giant ones!